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United States Department of the Interior

GEOLOGICAL SURVEY  
WASHINGTON, D.C. 20242

November 1, 1973

Memorandum for the Record

To: All Concerned  
From: Douglas C. Alverson, Branch of Special Projects, Arlington, Va.  
Subject: Trip to the USSR, September 28-October 9, 1973

In mid-September of this year I was invited to participate in the visit to the USSR of a delegation constituting the U.S. part of the joint USSR-U.S. working group on the problem of preventing marine and river pollution during well drilling, exploitation of oilfields, and pipeline transportation of oil. This working group is one of several established by the USSR-U.S. Agreement on Protection of the Environment signed in 1972, which provides for the exchange of visits and information in many environmental fields. The purpose of the visit was to become acquainted with Soviet oil pollution problems in both offshore and onshore areas, approaches to the solution of these problems, and appropriate personnel. The trip returned the visit made to the United States in May by Soviet petroleum engineers L. A. Pelevin and V. N. Samarskiy (see my memorandum of June 6, 1973).

The delegation was in the USSR from September 29 to October 8, 1973. The hospitality with which we were received by our Soviet hosts was overwhelming, as evidenced by the formal meals, entertainments, gifts, and other considerations showered upon us. Statements made during formal discussion periods and informally, at other times, by our Soviet counterparts leave little doubt as to their desire for the closest possible friendly relations between the United States and the USSR.

The delegation visited the extensive offshore oilfields at Neftyanyye Kamni in the Caspian Sea near Baku and the largely automated Tuymazy oilfield in western Bashkiria, about 1,000 km east of Moscow, in the Volga-Urals petroleum province. Water-treatment facilities were examined at both oilfields. In addition, models of equipment and production processes were seen in laboratories and offices in Ufa, Oktyabr'skiy and Moscow. Presentations and discussions relative to the purpose of our visit were held in Baku, Ufa, Oktyabr'skiy and Moscow. At the beginning of the trip, Dr. Karayev, Chairman of the Soviet delegation, reported on the status of the petroleum industry with respect to protection of the environment, and a summary of Soviet regulations concerning protection of the marine environment from pollution was made

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available to us. In Baku, formal reports and talks centered on the status of oil development in the Caspian Sea, research on preventing pollution during offshore operations, and treatment of formation water used in waterflooding systems, and in Ufa, five formal reports were delivered on various aspects of treating and using formation water for injection.

Upon our return to Moscow on October 7, final discussions were held with Dr. Karayev and his staff relative to the wording of the "Protokol," or Minutes of our meetings, including plans for future work and exchanges of personnel and information.

My participation in the work of the delegation consisted of providing background information on the USSR, especially its geography, geology, and petroleum industry, serving as an interpreter and translator in the absence of the Soviet interpreter, Mr. Koverzrev, and preparing and checking the various versions of the "Protokol."

Attached are a narrative report of the trip, lists of the U.S. delegation and Soviet personnel that we met, information about specific Soviet personnel, and recommendations and comments.

A. Narrative

On September 28, 1973, at 8:15 p.m. the undersigned and other members of the U.S. delegation left Dulles International Airport on Pan American Airways Flight 106 for London. After our arrival at 8:30 a.m. there was a short layover, and at 10:50 a.m. on the 29th we left London Airport on British European Airways Flight 672 for Moscow. We arrived at Sheremet'yevo airport, just northwest of Moscow, at 4:10 p.m. and were met at the airport by Dr. N. K. Krems, B. A. Kuvshinnikov, and E. A. Makhmudbekov, of the Ministry of the Oil Industry of the USSR, and Vladimir Koverzrev, of the Ministry's Protocol Section, who was to be our interpreter throughout the trip.

After passport inspection and customs formalities, we were driven to the Hotel Rossiya, in the center of Moscow. Following a brief rest, we met again on the top floor of the hotel for what was to be the first of many formal dinners in the USSR. Dr. Krems, substituting for Dr. Karayev, who was ill, introduced his coworkers, and many toasts were drunk to the success of our joint undertaking. After dinner, our hosts led us on a nighttime walk to Red Square and Lenin's Tomb, and drove us to the Lenin hills for a magnificent view of Moscow at night.

The next morning, following breakfast at the hotel and a walk to Red Square, our hosts took us to Domodedovo airport, about 50 km southeast of the center of Moscow. Our flight to Baku was delayed several hours, but Aeroflot Flight 857 finally delivered us to our Azerbaijani hosts at about 7:00 p.m. We stayed at the Hotel Azerbaidzhhan, Baku's finest, near Dom Pravitel'stva (Government House) and Baku Bay. After dinner at the hotel restaurant, we walked through Primorskiy (Seaside) Park and retired.

On October 1, we were driven to "Gipromorneft" Institute(USSR, 37061, Baku, Ulitsa Uz. Gadzhibekova, 16) where we were greeted by Dr. N. K. Babayev, Director, and introduced to members of his staff, including Dr. I. A. Iskenderov, Dr. N. A. Aliyev, Dr. S. E. Manukyan, and Dr. I. P. Kuliyev. "Gipromorneft" Institute is the research and planning arm of Kaspromorneft Ob'yedineniye, the organization responsible for exploration and oil production in the Caspian Sea. At the Institute, several reports were presented in Russian, followed by English translations, and copies of the reports furnished to each member of the U. S. delegation. After a 2-hour break for lunch, we returned to "Gipromorneft" for further discussions. At dusk we were taken on a fast tour of Baku, which included the monument to the 26 Baku Commissars, the Nizami Monument and Museum, the Virgin's Tower, and the Kirov statue on a hill overlooking Baku Bay. We had dinner at the hotel, and retired.

On Tuesday, October 2, our hosts picked us up at the hotel and we repeated, in daylight, the long drive through the industrial districts of Baku to the airport. No indication of the nature of the plants and factories in these districts was visible from the highway, but our hosts informed us that most produced equipment for the oil industry. Most buildings were one- or two-story, enclosed by a low wall, and had a rundown appearance. Exhortative

and propaganda signs were to be seen on many buildings and streets. The Apsheron peninsula here is flat to gently rolling, with a few hills, and, outside the city is covered only by sparse grassy vegetation. In a few places, large, flat-bottomed valleys with more verdant and abundant vegetation were seen.

At the airport, we boarded a large Aeroflot helicopter and flew to the oil-fields at Neftyanyye Kamni (Oil Rocks) which are located about 100 km east of Baku. En route we passed over part of the Apsheron peninsula and the oilfields at Artem and Zhiloy islands, which are partly offshore and partly onshore. The maximum depth of wells at these fields is about 4,500 m, and all production is from faulted anticlinal structures in the Middle Pliocene.

Neftyanyye Kamni is a large oilfield built on platforms on and around rocks and shoals in the Caspian Sea. Approximately 4,000 people work at Neftyanyye Kamni, in 12-day shifts. The wells and other facilities are connected by causeways (trestles) supported on steel piles driven into the bottom sediments of the Caspian Sea. The causeways total about 200 km in length.

Our first major stop at Neftyanyye Kamni was at one of four water-separation installations at the field. A total of about 70,000 m<sup>3</sup>/day of water is re-injected to maintain formation pressure. One of the four installations uses fresh formation water, the other three sea water. The fresh water installation treats about 10,000 m<sup>3</sup> of water per day. Before treatment, the formation water contains about 50-60 mg/l of mechanical impurities (sand, etc.). This is lowered to about 12-15 mg/l by the coalescent filter tank, which has a capacity of 2,400 m<sup>3</sup>. Oil from Neftyanyye Kamni has a specific gravity of .87-.90, and is free of H<sub>2</sub>S. Production costs are about 4.60 rubles per ton, and about 14,500 tons of crude are produced daily from 22 pay zones in the Pliocene\*. Reserves are estimated at 150 million tons.

Other stops on our tour of Neftyanyye Kamni included the park, workers' settlement, the museum, the first house, the bakery, and similar points of interest. In the auditorium we were shown a film of a fire which occurred in the 1950's at Neftyanyye Kamni. The fire resulted from a blowout, which created a violent natural seep of gas and oil nearby. The fire was extinguished by depth charges after several days. Following the film, we had a light lunch (only five courses this time, but with the customary number of toasts), and then we returned to Baku by ship. During the voyage we were guests of the Captain in his cabin and were kept apart from the other passengers. Conversation, fruit, Azerbaijhanian backgammon, and a respectable number of toasts filled in the return trip. Near Baku we passed a Soviet warship (probably a destroyer) leaving port. We landed at the new marine terminal and walked back to the hotel.

On Wednesday, October 3, talks resumed at "Gipromorneft" Institute. Most of the time, the undersigned was closeted with Makhmudbekov and others

\*/ 1 ton of crude oil = 6.6-8 bbl., depending on specific gravity

preparing the first of several versions of the "Protokol," or Minutes of our meetings. In mid-afternoon we lunched at an outdoor cafe in Seaside Park. Following this, we were received by Dr. Suleymanov, Chief of "Kaspmorneft'" Ob'yedineniye, an organization employing about 26,000 people, responsible for all phases of exploration and production of oil on the Caspian Sea. It produces about 12 million tons of oil and 8 billion m<sup>3</sup> of gas per year. It has a fleet of about 400 vessels to service offshore installations. Dr. Suleymanov distributed souvenirs to the delegation, including Azerbaijani tea sets, commemorative medals and pins, and a book about Azerbaijan.

Following our reception at Kaspmorneft', there were a few moments for souvenir shopping and rest before we were taken to the Petroleum Workers' Club, somewhere in the outskirts of Baku, for dinner. En route we stopped at the Temple of the Fire Worshippers at Ashtegyakh. The temple is built at the site of natural gas vents, around which a kind of hostelry had been constructed by Indian fire-worshippers in the 19th Century. The Petroleum Club is a handsome modern building built in the Azerbaijani architectural style, in pleasant garden-like surroundings. As usual our hosts overfed us, and, also as usual, the evening was consummated by a surfeit of toasts. Soviet-American friendship reached new heights during a songfest on the bus on the way back to the hotel.

On Thursday, October 4, after settling accounts at the Hotel "Azerbaijan" we were taken to Baku airport, and placed on the Aeroflot flight to Moscow. Our hosts from the Ministry met us at the airport and gave us a 3-hour guided bus tour of the heart of Moscow including a circumnavigation of the Kremlin walls and the Bol'shoy theater. We returned to the airport for the customary light repast, and boarded Aeroflot Flight 342 for Ufa. Arriving in Ufa just before 1:00 a.m., local time, we were again treated to dinner, and about 2:00 a.m. we began the drive to Oktyabr'skiy, about 160 km to the west. The night was cold and rainy, the road narrow and bumpy, but well fortified for these hazards we set off and at 6:20 a.m. arrived at the Petroleum Workers' Rest House near Oktyabr'skiy. Another light repast awaited us, and 2 hours later we crept into bed.

On Friday, October 5, we arose about 11:00 a.m. and, following breakfast, were taken to "Dom Tekhniki" (Technology House) in Oktyabr'skiy, where we were briefed by Dr. Akmeshin on the Tuymazy oilfield. Prior to 1944, exploratory wells at Tuymazy penetrated only Carboniferous rocks, resulting in comparatively low yields. In 1944, well no. 100 reached the Devonian at 1,700 m, and a "great gusher" was obtained, yielding 250 tons of oil per day. Production is now from pay zones in the pre-Devonian, Devonian, Carboniferous, and Permian. The principal pay zones are D<sub>1</sub> and D<sub>2</sub> (Devonian). About 85 percent of the field's reserves are held in the Devonian, and it is anticipated that about 45 percent of the reserves are recoverable. Structurally, the field is an irregular uplift, with long axis, about 50 km long, trending NE, and short axis about 16 km long. Injection wells are located 1.5 to 5 km from

producing wells, outside the oil-water contact. Injection wells are 3 km apart, production wells 400 m apart along radial lines that are 500 m apart. The pay zones are fine-grained sandstone with good permeability and porosity. The crude oil has a specific gravity of about 0.86, and viscosity of about 2.5 centipoise. There is no gas cap and no faults have been mapped in the structure, which is described as "platform-type". The field contains 1,480 producing wells, of which 470 have centrifugal pumps, and 6 flow at the surface. Production from the field is about 13,400 tons per day of oil, and 78,000 m<sup>3</sup> of water. There are 2,250 injection wells, which pump about 111,000 m<sup>3</sup> of water back into the field. All produced formation water is reinjected. Formation water contains about 25 mg/l of oil and 33 mg/l of solid particles. Only petroleum (associated) gas is produced, and 98 percent of it is used at the field. The field is highly automated, requiring a minimum of personnel for repair and well servicing. No fires or blowouts have occurred. Sand is not present in oil produced from the field. H<sub>2</sub>S is present in oil from the Carboniferous. Maximum recovery rate from the field is about 50,000 tons/day. Power requirements are 2 million kilowatt-hours per year, of which 60 percent is used for water injection.

Following Dr. Akhmetshin's briefing, we were guided through the exhibit halls of Technology House which included some excellent working models. During most of this time, the undersigned was with Pelevin and Makhmudbekov, drawing up a revision of the "Protokol." In the afternoon we toured the Tuymazy oilfield itself. The area seen by the delegation is in large part hilly, and about equally divided between fields and woods. During the tour, the delegation visited the famous well no. 100, from which Devonian oil was first produced, as well as an automated production control station, a water treatment plant, and other installations. All seemed to be well maintained. Following the tour, the party returned to the Petroleum Workers' Rest House for dinner and rest.

On Saturday, October 6, the U. S. delegation and our accompanying Soviet hosts returned to Ufa by car. After a short tour of Oktyabr'skiy, which is a modern city of about 70,000 founded in 1946, we drove through the relatively sparsely populated, wooded, dissected plateau of western Bashkiria. The plateau (the Bugulma-Belebey upland) is transected by several large flat-bottomed valleys, possibly 1-2 km wide, which are flanked by relatively steep-sided bluffs. The bluffs are capped by thin-bedded red and white clastics(?) of lacustrine origin. We stopped for a few moments at Lake Kondrikul, a beautiful remnant lake in an old Pleistocene drainageway, now a fishing resort. About half-way to Ufa, the terrain becomes more level and the frequency of small Bashkir villages along the road increased. Houses in the villages are small log cabins with shutters and ornamentation invariably painted blue and white. The proportion of land devoted to agriculture also increased. Ufa itself is situated on high bluffs ( 20 m?) at the confluence of the Belaya and Ufa rivers. It is a very large, in many respects

modern, city of about 800,000 people. Its industry is mostly related to service, supply and equipment for the oil industry.

In Ufa, the delegation was received by Dr. G. A. Babalyan, Director of "BashNIPNeft" Institute, which is the research and development arm of "BashNeft" Ob'yedineniye, the organization responsible for oil production throughout Bashkiria. The Institute is divided into a research division and a design division. Its activities encompass research in the geological sciences, prospecting, drilling, development, production, and economics of oil. It employs about 1,600 people, of whom 750 belong to the design division, and the rest to research. Research in increasing oil recovery using waterflooding methods and surface-active agents is emphasized. Scientific personnel at the Institute include six Doctors of Science and 70 Candidates of Science, and through its Scientific Council, the Institute is empowered to grant higher degrees.

Following the briefing by Dr. Babalyan, the delegation, guided by Dr. U. M. Baykov, toured two laboratories in the Institute which were impressive for their cleanliness. In one laboratory, the mechanics of the coalescent filter standing tank seen at Tuymazy were explained, with the help of models and diagrams. The tank has a capacity of  $1\frac{1}{2}$  - 3,000 m<sup>3</sup>/day, producing water with an impurities content of 15 mg/l or less.

After the visit to "BashNIPINeft" Institute, the delegation was received by Dr. Ye. V. Stolyarov, Chief of the "BashNeft" Ob'yedineniye. This visit was largely formal and Dr. Stolyarov distributed momentos of our visit to Bashkiria, including handsome carved wooden bears, a can of Bashkirian honey, commemorative medals and pins. Upon our return to the hotel, our Soviet counterparts hosted us at yet another multicourse dinner.

At 6:12 a.m. on Sunday, October 7, following an early morning breakfast at the hotel we drove to the airport where a few moments were available for final discussions with Dr. Babalyan regarding development of new drilling techniques and the use of surfactants. Dr. Babalyan admitted that the use of nuclear explosives to stimulate production had not been as economically rewarding as hoped. Aeroflot flight 342 delivered us to Domodedovo airport at 8:30 a.m. Moscow time, and our hosts from the Ministry took us to the Hotel Rossiya. Dr. A. O. K. Karayev, Chief of the Technical and Economic Administration (Upravleniye) of the Ministry, presented members of the delegation with a handsome tea set from Uzbekistan, and a beautiful book of pictures of Moscow, as souvenirs of our visit.

In the early afternoon, the delegation was taken to the Ministry of the Oil Industry, which is located on the Moscow River across from the Kremlin (USSR, 109823, Moskva Zh-35, nab. M. Toreza, 26/1), and welcomed by Dr. Karayev and members of his staff. After preliminary comments, the "Protokol" was discussed point-by-point and a final version was approved. During the discussions

and Dr. Karayev's subsequent briefing, Lev Pelevin, E. A. Makhmudbekov and the undersigned were engaged in translating and checking the final Russian and English texts of the "Protokol."

Following our meeting with Dr. Karayev at the Ministry, the entire group was taken to the Baku Restaurant for a final banquet of Azerbaidzhanian national dishes interspersed with an appropriate number of toasts. After dinner, we drove to the Moscow Circus, somewhere in the vicinity of Moscow University, for an enjoyable evening of fine entertainment. After the circus, the group returned to the Hotel Rossiya on the Moscow subway system (Metro). All were impressed by the size and cleanliness of the stations, which resemble art galleries more than subway stops. We arrived at Red Square in time to see the 11:00 p.m. changing of the guard, and then returned to the hotel.

On Monday, October 8, the undersigned delivered the Atlas of Azerbaidzhanian Mud Volcanoes presented to him in Baku, copies of the Soviet reports, and other documents to the American Embassy for transmittal to the U.S. via diplomatic pouch. After rest, casual walking about the city, and souvenir buying, the undersigned and others of the delegation were taken to Sheremet'yev airport by our Soviet hosts, by whom our processing was much facilitated, and we boarded Air France Flight 725 for Paris at 5:05 p.m.

B. American delegation

W. A. Radlinski, Associate Director  
U. S. Geological Survey, Reston, Virginia  
Chairman of the U. S. delegation

Douglas C. Alverson, Geologist  
Branch of Special Projects, U.S. Geological Survey  
Arlington, Virginia

Thomas A. Collins, District Manager  
Placid Oil Company, New Orleans, Louisiana

Richard B. Krahl, Chief  
Branch of Marine Oil and Gas Operations, U. S. Geological Survey  
Reston, Virginia

A. J. Laborde, President  
Ocean Drilling and Exploration Company  
New Orleans, Louisiana

Warren Marshall, Division Production Manager  
Offshore Division, Shell Oil Company  
New Orleans, Louisiana

Hillary A. Oden, Assistant Conservation Manager  
Western Region, U. S. Geological Survey  
Menlo Park, California

L. C. Soileau, III, President  
Chevron Oil Company, California Company Division  
New Orleans, Louisiana

C. Soviet Personnel  \* Indicates persons officially designated as Soviet members of the Working Group

1. Moscow

\*Karayev, A. K., Chief, Technical-Economic Administration and Member of the Collegium, Ministry of the Oil Industry of the USSR; Doctor of Technical Sciences; Chairman of the Soviet part of the Working Group

\*Chelpanov, P. I., Deputy Chief, Technical-Economic Administration, Ministry of the Oil Industry of the USSR

\*Makhmudbekov, E. A., Section Chief, Technical-Economic Administration, Ministry of the Oil Industry of the USSR; Scientific Secretary of the Soviet part of the Working Group

\*Samariskiy, V. N., Chief of the Section for the Development of Offshore Drilling and Production Techniques and Shipping, Ministry of the Oil Industry of the USSR

\*Kerms, N. K., Deputy Chief, Foreign Relations Administration, Ministry of the Oil Industry of the USSR

Koverzrev, V., Protocol Section, Foreign Relations Administration, Ministry of the Oil Industry of the USSR (our interpreter)

\*Kuvshinnikov, B. A., Counselor to the Staff of the Soviet part of the Joint Soviet-American Committee; Main Administration of the Hydrometeorological Service of the USSR

2. Baku

\*Suleymanov, A. B., Chief of "Kaspomorneft" Ob'yedineniye; Doctor of Technical Sciences

\*Babayev, N. B., Director of "Gipromorneft" Institute; Doctor of Technical Sciences; Professor; State Prize Laureate

Kuliyev, I. P., Deputy Director of "Gipromorneft" Institute Doctor of Technical Sciences; Professor; Lenin Prize Laureate

Zeynalov, T. K., Chief of the Technical Section, "Kaspomorneft" Ob'yedineniye

\*Iskenderov, I. A., Chief, Marine Environmental Protection Section, "Gipromorneft" Institute; Doctor of Technical Sciences

Manukyan, S. Ye., Chief Project Designer, Marine Environmental Protection Section, "Gipromorneft" Institute; Doctor of Technical Sciences

Gidanov, I. A., Project Chief, Marine Environmental Protection Section, "Gipromorneft" Institute

Efendiyev, N. M., Chief Project Designer, Marine Environmental Protection Section, "Gipromorneft" Institute

Aliyev, N. A., Section Chief, "Gipromorneft" Institute; Doctor of Technical Sciences

3. Ufa

\*Pelevin, L. A., Deputy Director, All-Union Scientific Research Institute for the Collection, Treatment and Transportation of Oil, Gas, and Water

Stolyarov, Ye. V., Chief of "Bashneft" Ob'yedineniye

Vasil'yev, A. I., Chief, Secondary Methods of Oil Recovery Section, "Bashneft" Ob'yedineniye

\*Babalyan, G. A., Director, "BashNIPIneft" Institute; Doctor of Technical Sciences; Professor

Baykov, U. M., Section Chief, "BashNIPIneft" Institute; Candidate of Technical Sciences

4. Oktyabr'skiy

Akhmetshin, A. G., Chief of "Tuymazaneft" Upravleniye

Ionov, V. I., Chief, Engineer, "Tuymazaneft" Upravleniye

Gazizov, Z. S., Chief Geologist, "Tuymazaneft" Upravleniye

D. Comments on Soviet personnel

1. E. A. Makhmudbekov. Mr. Makhmudbekov is a native of Azerbaidzhan and has worked in the petroleum industry for some 45 of his 60 years. His services have been recognized by the Soviet government by the award of the title "Honored Worker in the Petroleum Industry," and he always wears the gold medal accompanying this designation. Makhmudbekov's appearance belies his age, and it is difficult to believe that he has a son, also a petroleum engineer who is 33. His attitude was most friendly, he has a great sense of humor, and he seemed to be highly regarded by all the oilmen we met. In his capacity as Scientific Secretary to the Soviet part of the working group, he accompanied our delegation to all the points we visited in the USSR, the only one of our Soviet hosts to do so aside from V. Koverzrev, our interpreter. Makhmudbekov expressed a great interest in all things American and looked forward to visiting the U. S. next spring. He was particularly respectful of President Kennedy, and asked me to send him pictures of the Kennedy gravesite in Arlington. He is a Section Chief at the Ministry, in Moscow, but of which section was never made clear. He has lived in Moscow for about 35 years. He speaks no English, is fluent in Russian and Azerbaidzhanian is his native tongue. Makhmudbekov and Pelevin jointly shared responsibility for the preparation of the "Protokol," or minutes of our meetings in the USSR.

2. V. N. Samarskiy (see also my memorandum of June 6, 1973). Mr. Samarskiy participated in our discussions in Baku and seemed to command a great deal of authority there. According to Pelevin, Samarskiy's high blood pressure began to bother him seriously and he was forced to cancel his participation in the remainder of our trip and return to Moscow. He did not appear on the last day in Moscow, as I would have expected, so it must be assumed that his condition was serious.

3. L. A. Pelevin (see also my memorandum of June 6, 1973).

Mr. Pelevin met us at the Ufa airport and drove Krahl and myself from Ufa to Oktyabrskiy in his own car, very likely in return for similar services rendered to him in New Orleans. In Ufa and especially Moscow, Pelevin gave ample evidence, in his methods of solving minor problems, of his long political experience as a Deputy to the Supreme Soviet of the RSFSR. With only a quick, almost surreptitious flash of his identity papers, an arm about the shoulders, and a smooth verbal approach, which usually ended with "God grant you and your family good health," Pelevin secured passports after hours, hastened room assignments at hotels and arranged for tea in my room at a very early hour, among other accomplishments. Pelevin did admit that he was tired of serving as a Deputy, even though this brings many fringe benefits, such as free travel throughout the Soviet Union, reduced rates at hotels, a chauffeur, etc. He probably will not run for a fourth term. During our trip, his principal responsibility seemed to be the preparation and continuous revision of the "Protokol." After the final version was finished in Moscow (and he had received a rather rude rebuff from Dr. Karayev), he quietly swore a few oaths, then wrote out a statement on a scrap of paper to the effect that as of that moment he was going on strike, never again to engage in this type of "dammed paper pushing." Then he signed it in English, and after Makhmudbekov read it and gave him a quizzical look, Pelevin crumpled the paper and put it in his pocket. Pelevin thinks that he probably will be a member of the Soviet delegation coming to the U. S. next spring.

4. G. A. Babalyan, Director of BashNIPIneft Institute.

An older man, his demeanor is quiet, friendly and sympathetic, and he gives the appearance of knowing his field. He would like to visit the U. S. very much. He is a nature enthusiast, and likes to fish and walk in the countryside. Dr. Babalyan is a native of Armenia and speaks a few words of English.

5. Vladimir Koverzrev. "Volodya," our interpreter, is a well-dressed, sophisticated Muscovite. He is a graduate of the Institute of Foreign Languages in Moscow where he specialized in English. He is the second-ranking person in the Protocol Section of the Foreign Relations Administration of the Ministry of the Oil Industry, but has had no formal engineering or scientific training. He spent 3 years in Iraq, where he became acquainted with Samarskiy and acquired much practice in speaking English. His command of English, even the vernacular, is excellent, and his skill as an interpreter (sometimes under very difficult conditions) shows good training and much practice. He would like very much to come to the United States as part of the Soviet delegation, and hopes that Radlinski will specifically request him. Koverzrev resides in Moscow, and has recently purchased an apartment in a cooperative development on the highway to Domodedovo airport. He admits to having the kind of relationship with his wife that permits him to engage in "amorous flights" elsewhere, and apparently did so a few times on our trip. His lack of inhibition

was at least partially demonstrated by the ease with which he joined in the Azerbaiadzhani national dance several times in Baku, and his flirtations in Baku and Ufa.

E. Recommendations and Comments

1. Although the reception and hospitality afforded us by our Soviet hosts were overwhelming, and could only create the very best impression of their desire for mutual friendship and cooperation, it can only (sadly) be concluded that much valuable time was lost at the dining and drinking table, considering the relatively short duration of our stay in the USSR. This is particularly true at Baku, where time offshore at Neftyanyye Kamni was spent at a formal luncheon, on tours of cultural features, and on a long boat ride back, that could have been spent at drilling and producing facilities. Much less time was wasted at Ufa and Oktyabr'skiy, where, all things considered, there was a better balance of briefing, discussion, and tour of facilities. It must also be added that, although Soviet cognacs, vodkas, and wines are superb, their consumption in the quantities apparently required at the inevitable and innumerable formal meals did not leave the undersigned, at least, in the best possible condition to carry out his functions.

2. In planning future trips to the USSR, U. S. personnel should be made aware that it sometimes requires a great deal more time (and patience) to complete certain actions in the USSR than in the U.S. For example, it was nearly impossible to complete breakfast in less than 1 hour, lunch in less than 2 hours, or dinner in less than 3 hours. Purchasing even inexpensive items often requires the writing of a receipt in duplicate, paying at a separate desk, and returning to the original desk to pick up the purchase. There were usually long lines at currency exchange and post office windows.

3. Careful consideration should be given to itineraries and reservations. We were charged for an extra day in Moscow (at 15 rubles per day) because of incorrect reservations, and for some reason the hotel in Ufa charged us for 2 days, although we were there less than 1 day. Perhaps Soviet hotel policy can be determined and itineraries planned accordingly.

4. Considering the difficulty encountered in converting certain travelers' cheques to rubles, the undersigned recommends that only U.S. currency or American Express travelers cheques be taken to the USSR (some difficulty might even be encountered with the latter outside the largest tourist cities).

5. Even simple official transactions in the USSR require a great deal of paperwork. At the Domodedovo Airport Intourist office it required the herculean efforts of no less than three highly placed Soviet officials to secure individual receipts for the fares payed from Moscow to Ufa. Even then, Intourist personnel protested that they had no right to issue such

receipts, and, disclaiming all responsibility for the consequences, begrudgingly made available suitable forms and official stamps so that our hosts could make out the receipts.

6. In remote areas and away from hotels, sanitary facilities are likely to be primitive, and only exceptionally match U. S. standards. It is recommended that U. S. personnel take a roll of toilet paper, hand soap, and a supply of kleenex.

7. According to personnel at the U. S. Embassy in Moscow, the "Beryozka" shops have the best selection of souvenirs and other items likely to be desired by visitors, at prices much lower than in ordinary Soviet stores. "Beryozka" shops accept only foreign (not Soviet) currency. Often desirable or scarce items such as fur hats can be found only in the "Beryozka" shops, which are located in the major tourist hotels and airports.

8. Foreign currency and travellers' cheques can be converted to rubles only at designated offices, usually in banks or hotels. A receipt for each currency transaction must be secured and kept, along with the Customs Declaration made upon arrival in the USSR, or it will be impossible to re-convert rubles back into dollars. Conversion from rubles back to hard currency can be done only at international airports, upon leaving the USSR. Currency of the USSR may not be taken out of the country.

9. Public transportation in Moscow, and presumably elsewhere in the USSR, is cheap and convenient. A taxi ride from the Hotel Rossiya to the U. S. Embassy cost about 60 kopecks. One can ride all over Moscow on the subway for only 5 kopecks. Our flight from Moscow to Ufa, a distance of about 1,150 km, cost only 22 rubles one way.

10. As gifts for our Soviet counterparts, the undersigned took several dozen Apollo shoulder patches, 10 silver dollars, pictures from the Apollo and Skylab programs, a few U. S. Government pocket circular slide rules, and two dozen ballpoint pens. The Apollo shoulder patches were very warmly received at all levels, especially when there was time to explain that the patches are copies of those worn by our astronauts on their spacesuits; the slide rules were well received; it was my impression that Kennedy half-dollars would have been better than Eisenhower dollars, and I turned the pens over to the U. S. Embassy as it seems that the ballpoint pen industry of the USSR has progressed mightily in the past few years.

11. The Soviets seemed to attach great importance to the preparation of a "Protokol" for each meeting of the joint working group. The "Protokol," perhaps best translated as "Minutes" or "Proceedings," is a record of meetings, presentations of papers, discussions, and agreements for further work. The "Protokol" of this trip was begun in Baku, continued in Oktyabr'skiy and finished in Moscow. Significant changes in the text were made in the

latter two places. Some prestige seems to be attached to being named in the "Protokol," and in Moscow the list of the Soviet delegation to the working group was pruned drastically.

12. Press coverage of the trip, so far as known, was limited to two short virtually identical items in the "Bakinskiy Rabochiy (Baku Worker) and "Vyshka" (The Derrick) (Baku) for October 2, 1973. Translation of the article in 'Baku Worker" follows:

"In the Interests of Cooperation"

"A delegation of petroleum specialists from the USA studying problems of preventing pollution of seas and rivers during well drilling, development of oil fields, and pipeline transportation arrived in Baku on September 30. The delegation, which is headed by V. Radlinski, Deputy Director of the U. S. Geological Survey, includes representatives of government agencies and private companies."

"The agreement between the USSR and USA provides for the development of cooperation in the field of protecting the environment in 11 problem areas. One of these is "Protection of the marine environment from pollution." For the joint solution of problems related to preventing pollution of water during well drilling, production and transportation of oil, a combined Soviet-American working group has been created."

"The delegation came to our country to become acquainted with Soviet experience, and for discussions of plans for the further development of Soviet-American cooperation in this field."

"On October 1, our guests visited "Gipromorneft" Institute, where they were told of work underway for protecting the Caspian from pollution."

(Azerinform).

13. Even a slight knowledge of Russian, plus a friendly and sympathetic attitude, go a long way.